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Research Article

Construction and Research of Amorphous Alloys and Ferroelectric Materials in the Digital Logistics Platform

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People have higher and higher requirements for the size, sensitivity, measurement range, repeatability error, and power consumption cost of sensors and memories in the field of electronic information technology. "Logistics" as another new industry in the modern social division of labor is showing its infinite vitality, and the rise of digital logistics is the use of network technology to meet the development of this era. Based on the application of amorphous alloys and ferroelectric materials to the construction of logistics digital platform, this paper is aimed at demonstrating the function of nonstatic alloys and ferroelectric materials to promote the data storage of logistics digital platform and other aspects from multiple perspectives. This article is mainly divided into two general directions. The first is to study the physical and chemical properties of amorphous alloys and ferroelectric materials separately. The content of the article is more complete by referring to relevant research literature or obtaining relevant targeted information; the basic structure of the digital logistics platform is modeled, and the application of amorphous alloys and ferroelectric materials is mainly applied to the two parts of the data service composition and the data layer. This arrangement is based on the sensor as the key to data processing. Location is of great significance to the entire platform system. The experimental results show that the digital logistics platform constructed in this paper can reach a score of 7.75 in terms of data security and 7.39 in terms of flexibility. It also increases the efficiency of the entire operation process.

1. Introduction

With the rapid development and rapid popularization of computer network application technology, electronic trading platforms have gradually increased. After development, a comprehensive trading system with a complete logistics system, financial services, and platform technology has been gradually formed [1, 2]. E-commerce is in a stage of rapid growth with strong growth, and many companies are approaching the direction of e-commerce, and modern logistics systems must rely on efficient modern logistics information platforms [3, 4]. In the traditional transaction mode, it is difficult for the demand side to know all the conditions of the materials, which is not conducive to the sale of the supplier, and it is not conducive to the purchase of the demand side. Because the concept of logistics is highly valued in the rise of e-commerce and the development of modern logistics relies greatly on the construction of information, information technology in logistics is another important application industry in the future information industry. Utilizing the accuracy, speed and openness brought by information technology greatly facilitate both supply and demand, better adapt to the needs of social and economic development, and promote the transformation of material transactions from traditional models to electronic transaction models [5].

In the customer-centric era, time and information efficiency are of the utmost importance. The efficiency of logistics management directly determines the efficiency of the entire supply chain [6]. With the application of the sharing economy, human logistics has become an emerging industry, and only logistics-based management platforms can show its efficiency and flexibility. Through the standardization of company logistics and warehousing, further improve the management process of warehousing logistics, so that the company has the ability to provide logistics public services. With the help of the R&D platform, the synchronization area of the business center is developed to reduce the loss of income caused by internal use and to increase

the integration of the sources of all parties and strengthen the source [7].

Due to the wide practicability of amorphous alloys and ferroelectric materials, researchers at home and abroad have paid a lot of attention. Lee et al. at home and abroad have prepared a Zr-based amorphous alloy-based composite material reinforced by continuous fibers of tungsten (W) or tantalum (Ta) by liquid pressing technology. The relationship between their tensile strength properties, microstructure, and mechanical deformation was studied using the Hopkinson split tie rods. The dynamic tensile test results show that the maximum strength of W fiber-reinforced composites (757 MPa) is much lower than the quasistatic measured strength, while the maximum strength of Ta fiber-reinforced composites (2129 MPa) is very high, but it is not yet widely used [8]. Lesz and Dercz have prepared binary Ni-Nb amorphous alloy ribbons by melt spinning technology. Melt spinning, a forming method using polymer melt as raw material, is spun using a melt spinning machine. Any heating can melt or turn into a viscous flow state without significant degradation of the polymer and can be spun using melt spinning method. Differential scanning calorimetry was used to study the glass transition and crystallization phenomena of the alloy, and the thermal properties of the binary Ni-Nb tape during heating and cooling were analyzed by DTA. The structure and fracture morphology of the belt were examined by X-ray diffraction and scanning electron microscopy [9]. Kulikova et al. studied the crystallization process and determined the structure and thermal properties of the Al86Ni8Ho6 amorphous alloy in a wide temperature range. It found the three-stage nature of the crystallization process when heated to 700 K. According to the high temperature X-ray diffraction analysis data, the three-stage kinetic model of the crystallization process has a reaction sequence based on the calculation of multiple nonlinear regressions [10]. In Rajaei et al.'s research, Ni-Mo and Ni-Mo-P alloy coatings were electrodeposited on AISI304 stainless steel samples as metal bipolar plates to improve the corrosion resistance, hydrophobicity, and conductivity of the samples. Scanning electron microscope (SEM) micrographs show that the prepared coating is uniform and dense. Potentiodynamic and potentiostatic polarization tests carried out in a simulated PEMFC cathode environment show that the corrosion resistance of the coated sample is significantly improved compared with that of the bare sample [11]. Barrett et al. reviewed the application of light emission electron microscopy (PEEM) and low energy electron microscopy (LEEM) in the study of the electronic and chemical structure of ferroelectric materials. Both PEEM and LEEM can be used for direct and reciprocal space imaging. Together, they provide access to surface charge, work function, topography, chemical mapping, surface crystallinity, and band structure. The application examples of ferroelectric thin film and single crystal research are introduced [12]. Fedeli et al. use the (vector) phase-field model description of ferroelectric domain evolution coupled with electroelastic equations to establish a simulation framework for electromechanical active materials. Several numerical experiments were performed to test the behavior of the adopted simulation framework. They proposed equal geometric collocation as a cheap but very accurate alternative to standard finite element discretization, which is also suitable for complex coupling problems [13]. Gorodetsky et al. proposed the conceptual model of the digital platform for cyber-physical management of manufacturing enterprises in the industry 5.0, proposed the types of basic platform services, listed the minimum service set of each type, and described their functions. It confirmed the leading role of multiagent system as the basic software architecture and technology, developing digital ecosystem applications. Examples of digital platforms and smart service ecosystems are provided to manage the cargo transportation of Russian railways in accordance with the principle of "Uberization." Ubiquitization means transforming existing work and services into tasks that are independent of each other and assigning them when needed [14]. Obviously, these studies are aimed at any aspect of amorphous alloys, ferroelectric materials, and logistics digital platforms. However, there is a relative lack of research that combines the two of them or even studies based on these three subjects. In terms of methods, these studies are relatively singular, so that the experimental results have certain limitations.

The main innovations in the construction of amorphous alloys and ferroelectric materials in the digital logistics platform studied in this paper are as follows: (1) By studying the interaction between defects and microstructures in ferroelectric materials, in-depth exploration of the failure mechanism of ferroelectric materials has better theoretical guiding significance for the reliability design of smart components. (2) By studying the interaction between electrical inclusions and microstructures, the hysteresis loops of different electrical inclusion models are given, so that the dielectric constant of electrical inclusions can be controlled to improve material properties or prevent material performance degradation. (3) The phase field method is used to study the stress field and microstructure evolution process of the electrode tip in MFA under different applied electromechanical loads and different temperature environments. The main consideration is the effect of temperature changes on the stress concentration area. (4) The temperature change of a substance is often closely related to the change of the microstructure and macroscopic properties. Through thermal analysis, accurate thermodynamic data related to the chemical reaction or physical process of the substance can be directly obtained.

2. Theoretical Analysis of Amorphous Alloys and Ferroelectric Materials

2.1. Ferroelectric Materials. In the past few decades, low-dimensional ferroelectric materials such as ferroelectric thin films, ferroelectric nanowires, and ferroelectric nanopillars have been widely used in the development of micronano devices due to their various excellent physical properties [15]. The preparation technology of ferroelectric materials is also more and more developed. Ferroelectric materials developed by the combination of thin ferroelectric thin films and microelectronics technology have become the most

active field of ferroelectric research in the world. Ferroelectric materials have a thermoelectric effect [16]. Ferroelectrics belong to pyroelectric crystals, but the crystal structure is more special. With its inherent characteristics of low energy consumption and fast response, it is widely used in the preparation of microfunctional components and has become a hot research object. Density functional theory does not care about the specific configuration of electrons. Its central goal is to find the space distribution of charges corresponding to the ground state of the system and to describe the physical state and chemical properties of particles, materials and solids through corresponding particle density functions. Multiferroic materials with ferromagnetic and ferroelectric properties are mainly concentrated in transition metal (rare-earth element) oxides, mainly due to their complex electronic structures and competing interactions. The mechanism of electric polarization is very complicated, and the corresponding multi-iron mechanism is also different. Ferroelectric materials can be applied to data storage [17]. Under the action of the stronger alternating electric field, the polarization intensity P of the ferroelectric body varies nonlinearly with the external electric field, and in a certain temperature range, P behaves as a double-valued function of the electric field E, showing a hysteresis phenomenon, and this P-E return line is the electric hysteresis return line. The hysteresis line is able to visually reflect the magnitude of the maximum polarization strength, residual polarization strength, coercivity field, etc., and the energy storage density of the material can be calculated from the hysteresis line integral. Due to the hysteresis loop of ferroelectric materials and the polarization reversal properties produced in the hysteresis loop, ferroelectric materials are widely used in ferroelectric memory (FRAM). Integrated ferroelectric materials are used in storage, infrared detection and imaging devices, ultrasonic and surface wave devices, and optoelectronic devices. In fact, under the action of external mechanical-electric load, the electric field near the crack is strengthened, which causes the electrical domain structure near the crack to reverse, that is, domain change [18, 19]. Since the accumulation of charge in the crack indicates that the electric field is concentrated in the crack, the formation of high-energy electric inclusions is formed. The crack tip produces high tensile stress concentration, which eventually leads to device failure. The digital oscilloscope completes the work of the acquisition card and does not require a voltage automatic attenuation module and a frequency measurement circuit, which greatly reduces the complexity of the circuit, while the operation is simple, and the integration and safety of the system are also improved [20].

2.2. Amorphous Alloy. The amorphous alloy is solidified by ultrarapid cold solidification, the alloy solidifies when the atoms are too late to orderly arrangement of crystallization, the solid alloy obtained is a long-range disordered structure, the molecules (or atoms, ions) that make up its material are not spatially regular periodic, there is no grain, and grain boundaries of crystalline alloys exist. The best properties of amorphous materials are directly related to their unique atomic properties. Therefore, studying the atomic system of amorphous materials is of great significance for understanding the properties of amorphous materials [21, 22]. A large number of scientists gradually discovered the insignificant value of these materials and supported their enthusiasm for the research of amorphous materials. The continuous grid accident model is used to describe the structure of metal-like amorphous alloys. The structural units of these amorphous alloys are random, and they are randomized in the form of copoint, collinear, and coplanar in a three-dimensional space. The connection forms a long-range disordered amorphous alloy. The structure of the amorphous alloy is isotropic, there are no line and surface crystal defects, and the metal bonding characteristics between atoms are maintained [23]. Compared with crystalline materials, amorphous alloy materials have a similar collision process. Considering the microstructure of amorphous alloys, the vacancies, interstitial atoms, and atom-depleted regions formed by it can exist instantaneously, but over time, these defects are impossible to stably exist in the amorphous alloy body. Related experimental studies have found that adding a certain number of large-scale atoms to the amorphous alloy will change its close packing mode, thereby reducing the corresponding diffusion coefficient and affecting its structural changes [24]. Many atoms show a certain state of coordination unsaturation, which makes the free energy of the system higher, which makes it have better mechanical properties and unique physical and chemical properties than traditional crystal alloys [25, 26]. The choice of opposing interaction forces in the system has a significant impact on the accuracy of molecular energy simulation results. Under low temperature or high pressure conditions, the tensile strength between the atomic plane of the amorphous alloy and the surrounding atoms is very strong, which is likely to cause a large amount of local plastic damage. However, large local atoms will not undergo plastic deformation due to local fatigue at high temperature or low pressure but will flow in a diffusion configuration [27]. The plastic deformation state of amorphous alloy is shown in Figure 1.

The energy saving and economic advantages of amorphous alloys are expected to be a reasonable and efficient evaluation method [28]. Amorphous alloys are widely used in distribution transformers, high power switching power supplies, pulse transformers, magnetic amplifiers, medium frequency transformers, and inverter cores, suitable for frequencies below 10 kHz. Amorphous alloys are prepared by the powder solidification and direct solidification methods. At present, the structure determination technology of amorphous materials also shows certain application limitations in this aspect, and it is unable to accurately detect the atomic arrangement. Study the internal molecular dynamics of amorphous alloys, and use formulas to derive this process:

$$R_\alpha = \sum_l Q_l(\delta_{l,k}(a)) + \frac{1}{2}\sum_{li}\varphi_{li}(a_{li}) - \sum_{i\neq l}\delta_i^x(a_{il}),$$
$$\varphi(a) = \left\| 1 + \chi\left(\frac{a}{a_h}\right)\right\| \exp\left[-\varphi\left(\frac{a}{a_h - 1}\right)\right]. \quad (1)$$

Among them, Q_l is the energy required for atomic

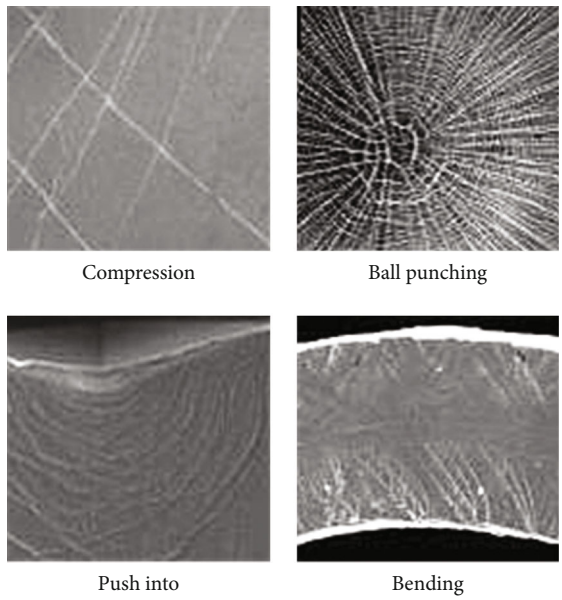

Figure 1: Plastic deformation state of amorphous alloy.

movement, $\delta_{l,k}$ is the electron density, and the distance between adjacent atoms is represented by a_{il}. According to the mechanical properties of the material, the multibody potential φ_{il} is simulated [29], and the density of the boundary structure can be calculated as

$$\delta(a) = \delta_o f(a-1) = \frac{1}{m-1}\left(\sum_{il}\chi(a-a_{il})\right)\lim_{l\longrightarrow\nabla}(a),$$
$$[a_l(s+s_i)-a_l(s_0)]^2 = \lim_{l\longrightarrow\nabla}\frac{\|\bar{a}(s)-\bar{a}(s)\|}{s-1}. \quad (2)$$

$\lim_{l\longrightarrow\nabla}$ represents the diffusion coefficient, s is the square of the average displacement, $\bar{a}$ is the position of the atom, m is the free volume, and the surrounding volume is represented by $f(a-1)$. After measuring the macroscopic hardness of the material with a Vickers hardness tester, it is found that the general hardness of the material has not changed. This is caused by the combined effect of hardness and elasticity, that is,

$$\iint s = \frac{R}{(3\pi)^{1.2r}} * \frac{1}{(Li)^{1.2}}\exp\left(-\frac{l^2}{3Li}\right),$$
$$\eta_{il} = \eta_{i0} = \frac{1}{3}\eta_{l1} = -\frac{\delta\forall r}{2(1-a)^2}. \quad (3)$$

Since there is not enough time to make a specific dynamic system $\iint s$, the flow of the amorphous alloy is accompanied by an increase in its internal free volume content $\forall r$, to identify the enriched area and the sparse area, expressed by the following formula:

$$Q = \left(\frac{h_1}{\kappa}\right)\exp\left[-\frac{ya^3\alpha}{G(\nabla G)^2}\right]. \quad (4)$$

The collision will change the trajectory of the particle. The particle moves along a broken line κ inside the material, constantly changing the direction of travel, and there is a complex cascade rotation outside [30, 31]. After the particle leaves, an empty space ∇G surrounded by a large number of oxides is formed.

3. Practical Application Data and Experiments of Materials in the Digital Logistics Platform

3.1. Properties of Amorphous Alloys. The storage system has become the bottleneck of data system performance improvement. In essence, intensive data computing poses unprecedented problems for the speed of storage systems. However, most storage systems, especially those that require high-speed data processing, are also built on custom magnetic hard drives. Because flash hard disks are completely built on semiconductor chips and do not have mechanical transmission functions, this different feature makes flash hard disks an efficient storage medium, which can improve the storage efficiency of mass systems [32, 33]. In the storage system, it is necessary to find a suitable location for the flash drive to achieve the proper balance between performance and cost. The existing method considers the difference of storage media, but does not consider the difference between the four functions. At this stage, magnetic hard drives are still very important in storage systems. Therefore, for most storage systems, flash drives should not be as easy to plan as replacing existing magnetic hard drives but should be a way to improve storage system performance. Many amorphous alloy materials have excellent corrosion resistance, which greatly promotes their practical applications in various technical fields. Because no matter what kind of product, its corrosion resistance is an important index to measure its quality; especially for sensor technology, this is even more important. The basic structure of the sensor provides the material basis for its work. But the sensor's sensitive components usually need energy while realizing its sensitive functions. And energy is basically provided by the appropriate form of circuit. In some important areas, it performs search operations better than other applications. The physical properties of amorphous alloys are shown in Table 1.

The breakthrough in the preparation process has enabled more and more millimeter-level bulk amorphous alloys and centimeter-level bulk amorphous alloys to be successfully prepared. Through some chemical theories, we have known that the activation point of chemical reaction is the defect in the material structure, and the reason for the formation of the galvanic cell in the electrochemical corrosion process is the fluctuation of the composition. Through industrial technology, we can deliberately introduce defects into the material to realize this material and analyze the mechanism and original elements of several

Table 1: Main physical properties of amorphous alloys.

Performance	Amorphous alloy
Saturation magnetic induction	1.539
Coercivity	<4.0
Unit loss	0.17
Density	7.20
Hardness	855
Saturation magnetostriction coefficient	35
Maximum permeability	>200
Thickness	0.03

commonly used amorphous alloy materials preparation methods, as shown in Figure 2.

Amorphous alloys have a very unique microstructure. The magnetostriction of amorphous alloy materials has become an important reason that affects its magnetic properties because there is no obvious macroscopic magnetic anisotropy in amorphous alloys. It is the existence of this excellent characteristic that makes amorphous alloy materials become excellent high-resistance materials and precision resistance materials. To this end, research is carried out on the correlation between physical characteristics and performance, as shown in Figure 3.

Due to the existence of alloy composition, preparation process, heat treatment, and other methods when preparing amorphous alloys, amorphous alloys can also exhibit unique dynamic characteristics according to different production methods. The paper value of similar amorphous materials has little effect on the statistical results; but the effect of specific heat on the statistical results is more significant. Measuring pressure not only is a very important issue in various fields of production and scientific research but also has a very important meaning in people's daily life. By picking up the signal in the induction coil and processing the signal data, the changed voltage and frequency signals are finally obtained, and the relationship between the output voltage and the vibration frequency is explored, as shown in Figure 4.

The above figure is a data analysis of the correlation between the expansion voltage and the output voltage and the vibration frequency in different regions of different turns. On the whole, the output voltage expands with the continuous expansion of the voltage, respectively, when the voltage is 1.1 and 2.25 reaching the maximum value; and the relationship between vibration frequency and voltage is generally negative. When the temperature is constant, it decreases with the increase of the compressive stress, and when the compressive stress is constant, it increases linearly with the vibration frequency. Whenever a new type of functional material appears, people will try their best to apply this material to sensor technology and try to explore the advantages of these functional materials to serve the development of sensor technology. The output voltage increases monotonously with the increase of distance and pressure, and the oscillation frequency decreases monotonously with the increase of distance and pressure. It can effectively hinder the rapid expansion of the shear band, overcome the shortcomings of catastrophic fracture and no macroscopic plasticity of metallic glass materials during tensile deformation, and make the composite material on the basis of maintaining the high elasticity and high strength of the amorphous alloy. It has large compressive plasticity and hardness.

3.2. Ferroelectric Materials. Ferroelectric materials are indispensable electrodes and have been extensively studied. It has a variety of polarization conditions. At different frequencies, multiple polarization conditions will produce different effects, so the dielectric appearance of different materials is very different. And the higher the polarization strength and electrical distribution of the dielectric material is, the greater the possibility that the material size will be uniform. The ferroelectric crystal maintains the ferroelectric phase below the Curie temperature and has ferroelectricity. When the temperature exceeds the Curie temperature, the ferroelectric crystal undergoes a phase change from a tetragonal crystal level to a rectangular energy level and transforms into a paraelectric body, which causes the spontaneous polarization of the ferroelectric material. The refrigeration mechanism of the ferroelectric card is shown in Figure 5.

The microstructure of ferroelectric materials determines the macroscopic properties of ferroelectric materials to a certain extent, and the simulation of the microstructure is very important in material design. It is difficult for ferroelectric bulk materials to control the crystal orientation, but the crystal orientation also has a negligible effect on the physical properties of the bulk material. If a compact block is used as an active amplifier, the response speed of the composite block is low and the oscillator is high. As regards frequency characteristics, design curve is impossible. We know that under the excitation of the alternating electric field of the probe, the surface of the sample is deformed due to the inverse piezoelectric effect, specific to the local area of the sample surface touched by the probe which may produce a slope. The records of the data statistics of the electric card effect under different electric inclusion situations are shown in Table 2.

Most ferroelectric applications have a phase transition temperature from a high paraelectric temperature to a low ferroelectric temperature. The ferroelectric vibration theory proposed on the basis of the elastic state theory considers the participation of the electric field, which can fully explain the purpose of spontaneous polarization. The increase of the external electric field within a certain range can make the temperature environment generated by the giant electric card effect more biased towards room temperature and thus form a more friendly experimental temperature. As the temperature increases, the ferroelectricity of the ferroelectric single crystal becomes smaller and smaller, but the high electric energy generated by the concentration of the electric field at the electrode tip keeps the domain structure active.

3.3. Construction of Digital Logistics Platform. Digital logistics is a system provider, optimizer, and combiner. We combine all aspects of logistics chain information operations for customers, provide customers with operational solutions, collect real-time information, provide a platform for

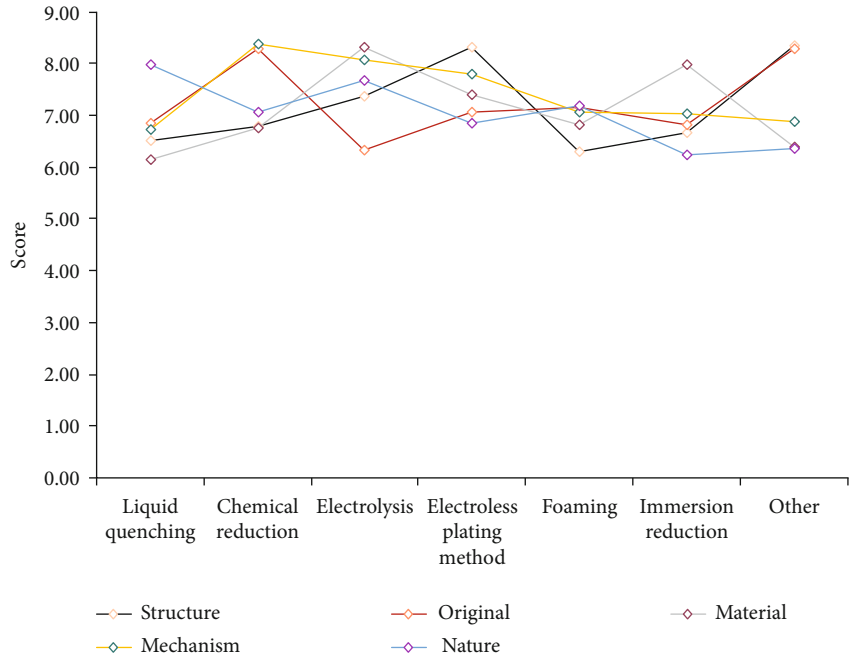

Figure 2: The impact of different methods on different elements.

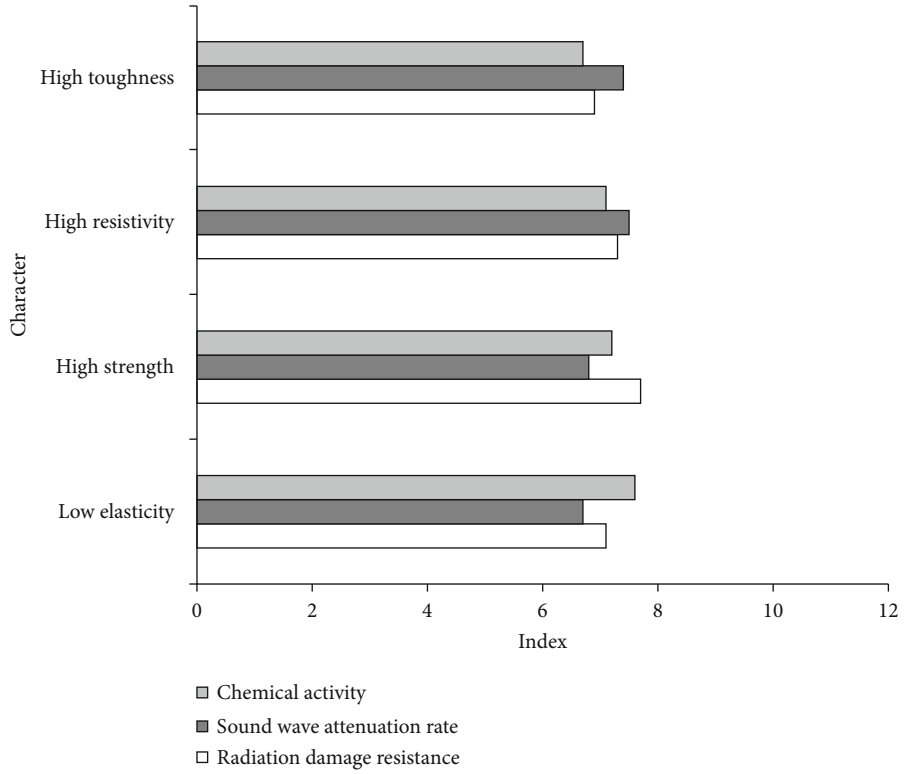

Figure 3: The correlation between physical characteristics and performance.

operational operations, promote the realization of logistics standardization, and constitute a multi-interface, multiuser, cross-regional, time-free macrologistics service platform. Nowadays, distribution and multitasking and manufacturing activities put forward requirements for the construction of store systems and logistics platforms required by logistics companies, requiring logistics companies' applications and materials used in logistics to be more integrated, modern, and diversified. The logistics cost advantage is the core competitiveness of every logistics company. The logistics

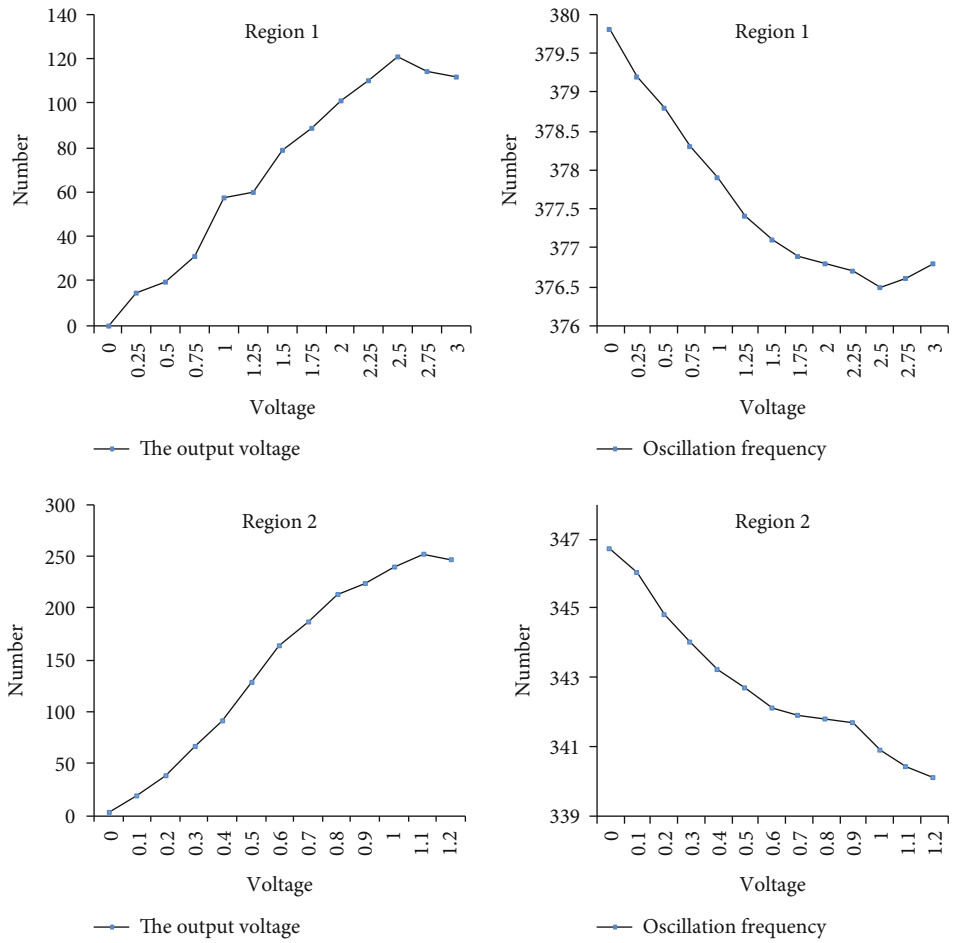

Figure 4: The relationship between output voltage and vibration frequency.

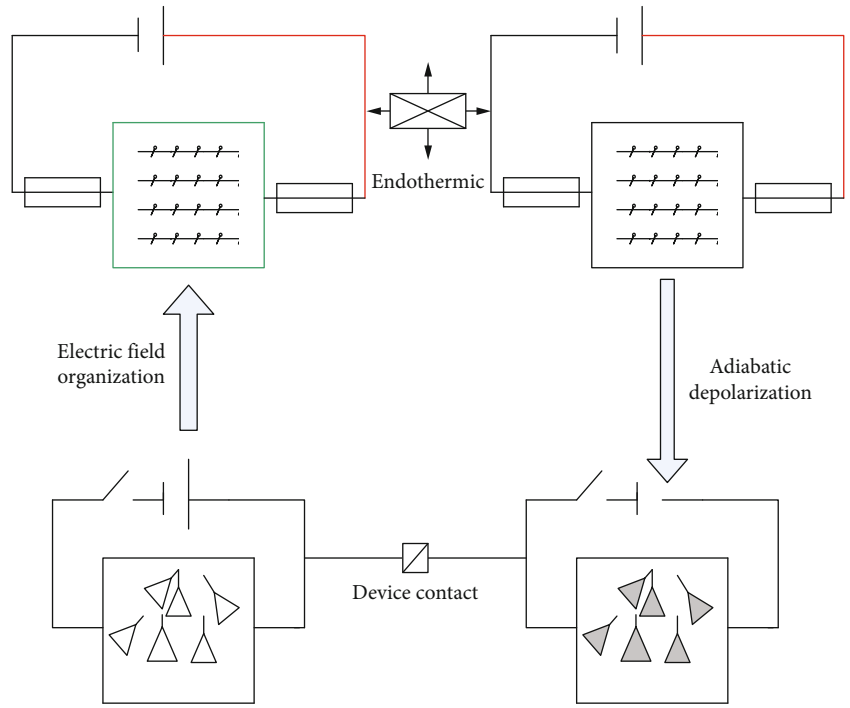

Figure 5: Ferroelectric card refrigeration mechanism.

Table 2: Data related to the electrical card effect under different electrical inclusions.

Electric inclusion mode	Temperature	Average temperature	Electric card
Air	200	-8.7	0.117
Air	450	16.01	0.023
Silicone oil	150	-18.3	0.372
Silicone oil	350	6.24	0.417
Water	100	-4.72	0.81
Water	240	6.26	0.216

information platform of logistics enterprises can use this series of feedback data to carry out effective analysis and improvement, and at the same time, it can also strengthen the communication and cooperation between logistics enterprises and goods suppliers and subordinate agent distributors. Because of the impressive use of a large number of inactive resources in society, the economic distribution system has taken root in all walks of life, and the concept of distribution is deeply ingrained. The current network platform includes the field of live broadcast services. Digital logistics has no time and space constraints and can complete logistics tasks with high quality within the specified time. The platform architecture is shown in Figure 6. For suppliers or digital logistics platforms with multiple distribution centers, when selecting a distribution center, they often agree on the service scope of the distribution center.

Use these controls repeatedly on multiple pages. Compared with user controls, custom controls are another step forward. Collect multisource data through the data augmentation system. Firstly, it is integrated, sorted, and saved to the data system level and then transmitted through the data call bar. Filter out the appropriate data information according to the corresponding database table, and then return to the front-end interface for display. It provides a robust functional system and is very suitable for large-scale applications that require reasonable unit testing, such as a digital logistics information platform that can carry multiple systems. The first appearance of the system is the database operation interface. Users can click on the table to be modified in the navigation bar on the left side of the interface. When the database model changes, just change the mapping object of the model. Due to information asymmetry and information barriers, it will lead to waste of resources on both sides of the supply and demand. In the process of loss, the profits of each party cannot be maximized, and some even cause serious economic losses, which seriously disrupt the normal order of social and economic activities. Therefore, it is necessary for us to digitize logistics management. Part of the logistics and distribution data of a certain company is selected, as shown in Table 3.

System functional requirement analysis is to describe all the functional submodules of the system from the user's point of view, and it needs to reflect the function and operation process of each module. Analyze the characteristics of digital logistics, as shown in Figure 7.

The data in the above figure shows that the digital logistics platform constructed in this article can reach a score of 7.75 in terms of data security and up to 7.39 in terms of flexibility. The logistics information management platform uses the power of the Internet to develop a network system based on logistics information and improve information exchange. Part of the multihoming phenomenon caused by platform differentiation is normal behavior. The multilayer system structure can provide more complete components for the logistics information platform, which not only improves the stability of the system performance, power consumption, and reusability but also saves a lot of system development costs; the currently widely used electronic authentication technology has passed. The identification of the user's identity and effectively prevent illegal users from entering is an effective method for scientific management and control of the system. In this system, the number of people used is relatively large, and the data involved is also a lot, which has higher requirements for the accuracy and completeness of the data.

In the case of low cost of multihoming behavior of bilateral users of logistics platforms, logistics platforms need to face the problem of the scale of bilateral users in the market. The logistics platform's product differentiation product service strategy determines the transfer barrier of the logistics platform. Platforms with differentiated services can often lock users more stably in market competition. Logistics platform companies use advanced GIS geographic information system navigation and GPS transportation and vehicle tracking systems to provide optimized route services for cargo transportation on the platform and vehicle safety supervision during driving. Perform data evaluation on the four aspects of basic management, business management, supervision management, and decision-making management of three different logistics management modes: visual logistics, bilateral logistics, and traditional logistics, as shown in Figure 8.

Compared with the traditional logistics management system, the digital logistics platform based on virtual simulation technology of logistics services can enhance the intuitiveness of river basin information expression and improve the system's display and processing ability of multi-dimensional and massive logistics data. The test of the system is not only a test for the function of the system, but also the operating environment of the system must be tested. Data owners need a set of effective data management and maintenance methods, and data users also need to understand the data and discover the data. In the process of data access, high efficiency, availability, and stability meet the development requirements. The scale of the data is conducive to the use

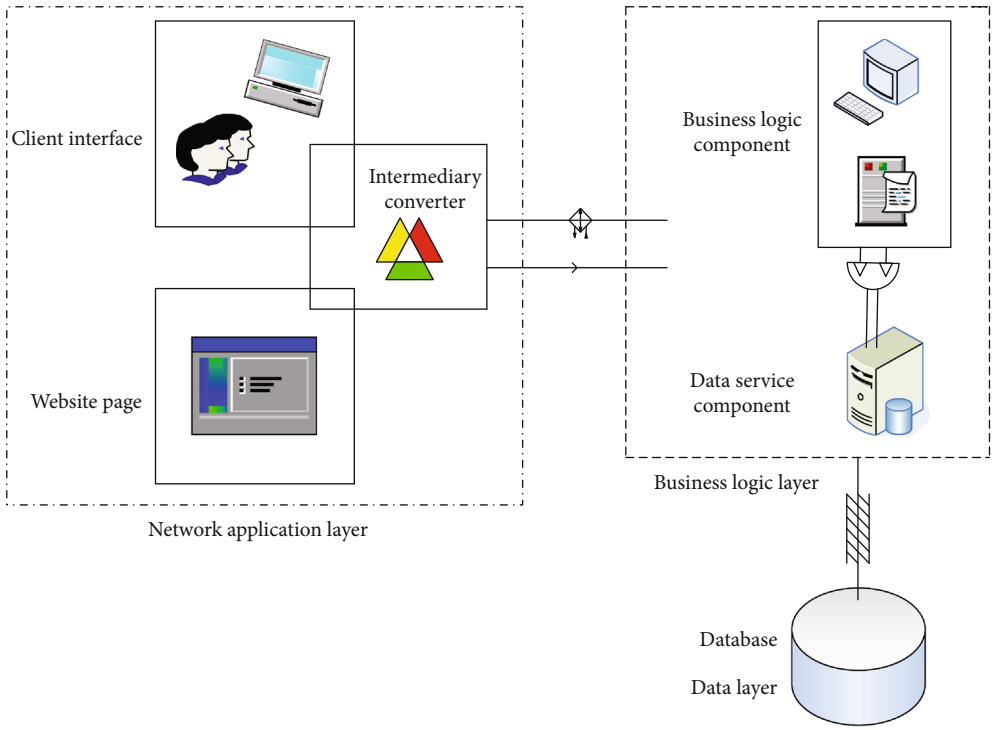

Figure 6: Platform architecture.

Table 3: One day's delivery data on a company's logistics platform.

Serial number	Longitude	Dimension
120	117.213	33.217
121	117.214	33.682
122	117.013	33.465
123	117.467	33.816
124	117.287	33.247
125	117.257	33.812
126	117.634	33.497
127	117.446	33.681
128	117.771	33.589

of users and ensures the security and stability of the data. Digital logistics can help Chinese transport enterprises to improve the efficiency of transport operations and the quality of logistics services. It is an indisputable fact in the industry that the operation of logistics needs to be networked.

4. Discussion

With the rise of the global Internet of Things technology boom in recent years, sensors, as the core component of the Internet of Things technology, have received unprecedented attention. The sensitive function of amorphous alloy material means that when this alloy is used as a sensor's sensitive material, it can convert the detected nonelectricity into a signal that is easier to pick up and process according to a certain rule. In some special occasions, it can also exert unimaginable positive and effective effects. Therefore, when studying the use of amorphous alloy materials, the mechanical functions should be used properly and flexibly. So far, bulk amorphous alloys have significant tensile strength and value as advanced materials. The polarization time of amorphous materials is slower than that of thin film materials. Therefore, the result cannot indicate the exact location. In the whole process, the shape of the amorphous alloy material does not change. The magnetic properties of the amorphous alloy material are mainly used, and it is difficult to measure the pressure. Comprehensive utilization of various properties of amorphous alloy materials is for achieving the purpose of pressure measurement.

There are abundant material expectations for ferroelectric applications, especially in small sensors and transducers. Nowadays, more and more experts and scholars are beginning to use ferroelectric testing devices in a multiphysics coupling environment to explore the richer information of ferroelectric materials in a multiphysics coupling environment. Due to its own characteristics, in actual service, ferroelectric materials are affected not only by the electric field but also by the interaction and influence of the stress field and the temperature field. Ferroelectric materials often exhibit richer physical properties in a multi-physics coupling environment, thus expanding their application fields. The ferroelectricity of ferroelectric crystals is the result of the movement of electric domains on the microscopic level, and the hysteresis loop and electrostriction of ferroelectric materials are the result of the movement of electric domains. This research content is relatively small in this article, and follow-up work will conduct more detailed research on this.

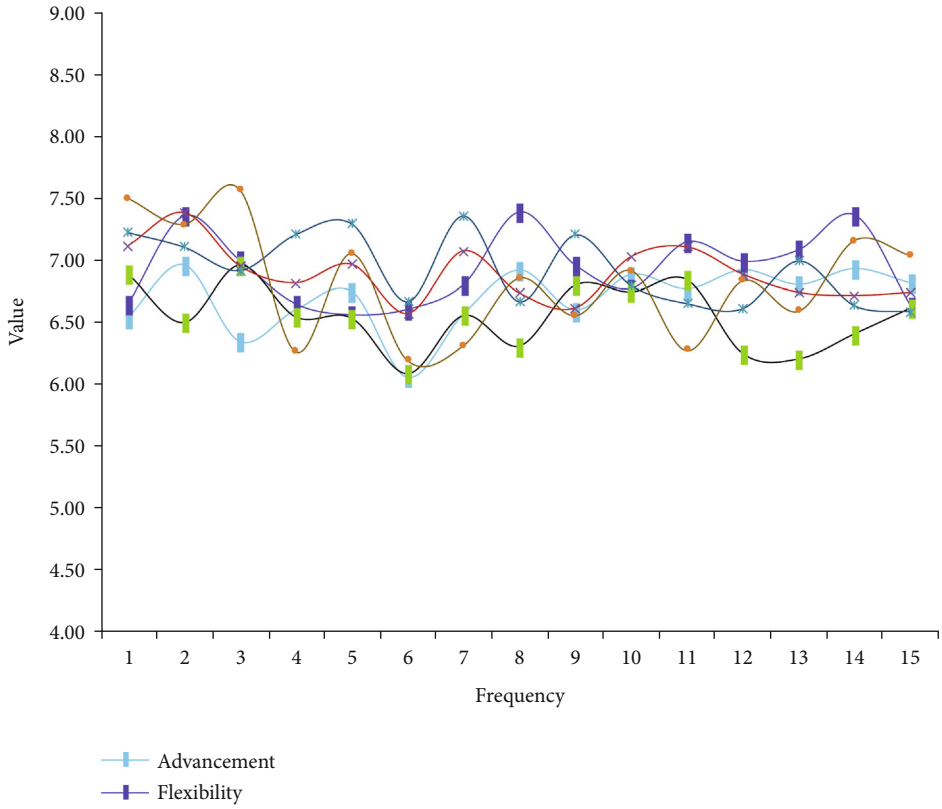

Figure 7: Characteristic analysis of digital logistics.

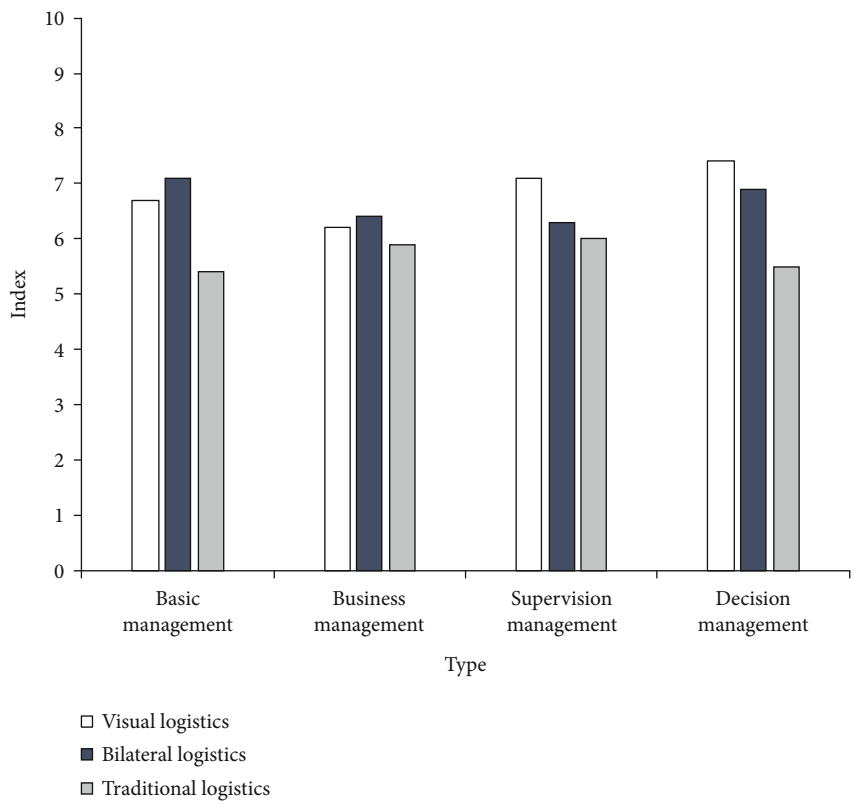

Figure 8: Corresponding score values of each management part of different logistics.

5. Conclusion

Logistics distribution is an important part of modern logistics management, especially suitable for objects with a large number of workplaces, such as companies with thousands of customers. Many logistics companies have begun to explore the logistics platform model, hoping to achieve cost reduction and efficiency enhancement, transformation, and improvement through the construction of logistics platform, and significantly enhance their competitiveness. Warehousing is one of the most important links in the supply chain. The efficiency and cost of the warehousing system also directly affect the efficiency and cost of all logistics. In the available logistics and collection process, the incompetence of the distribution chain supply chain is often caused by the inaccuracy or poor visibility of information in the logistics process. The integration of internal logistics sources, the planning and optimization of supply logistics, production logistics, and sales logistics systems through centralized management and innovative services are in full swing, and some results have been achieved. The lack of data measurement and exchange methods has a significant impact on all aspects of storage, such as storage and messaging, and there is also a lack of supporting information to identify macro and micro decision-making. Track the location through the specific positioning of the logistics location, to realize the storage of commodity data and the process of emergency adjustment of orders when it is out of storage and real-time monitoring of the path of the outgoing process to realize visualization. These links have extremely high requirements for data processing technology.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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